Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2023

Subject Code:3151309 Date:20-12-2023

Subject Name:Fundamentals of Air Pollution

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Define air pollution & give classification of sources of air pollution.	**03**
	(b)	Make a list of fuels and name the potential air pollutants generated from each type of fuels.	**04**
	(c)	Mention the purpose of stack monitoring & explain the need of iso kinetic sampling.	**07**
Q.2	**(a)**	Define the lapse rate & explain the method for determination of environmental lapse rate for a particular location.	**03**
	(b)	Name the six types of plume behavior & draw line diagram of that plume which can be observed during strong inversion condition of atmosphere.	**04**
	(c)	Write a short note on Maximum mixing depth.	**07**
		OR	
	(c)	Write a short note on heat island effect with neat sketch.	**07**
Q.3	**(a)**	List down the odor pollution detection instruments used in field.	**03**
	(b)	Discuss the odor characteristics.	**04**
	(c)	Enlist various noise control strategies & explain any three in details.	**07**
		OR	
Q.3	**(a)**	Differentiate between sound & noise.	**03**
	(b)	Enlist the odor pollution control technology & explain any two in detail.	**04**
	(c)	Write a short note on effects of noise on human.	**07**
Q.4	**(a)**	Write down the application of the following equipment, I. Anemometer II. Thermocouple III. Manometer	**03**
	(b)	Discuss important requirements for carrying out the ambient air quality monitoring.	**04**
	(c)	Write down the Gaussian dispersion equation & discuss the assumptions thereof.	**07**
		OR	
Q.4	**(a)**	Define the plume rise & write down any two equations of plume rise calculation.	**03**
	(b)	Discuss the applications of Wind rose diagram in the field of environmental engineering.	**04**
	(c)	Write short note on High Volume Air Sampler (HVAS).	**07**
Q.5	**(a)**	Explain the role of oxides of nitrogen in photo oxidation.	**03**
	(b)	Find out the flow of flue gas and particulate matter concentration in mg/Nm^3. Type of fuel is lignite (Mata no madh), fuel consumption is 2 T/day. Assume suitable data.	**04**
	(c)	Define the particulate matter & discuss the effects of particulate matter on human health & plants.	**07**
		OR	
Q.5	**(a)**	Enlist the four factors responsible for formation of photochemical smog.	**03**
	(b)	The Concentration of CO in cigarette smoke reaches 200 ppm. For this particular value determine the percent by volume and concentration in mg/m^3 at 25^0C and 1 atm.	**04**
	(c)	Discuss the effects of oxides of sulfur on human health, plants & property.	**07**

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